

Amendments to the Specification:

Please replace the paragraph beginning at page 1, line 3, with the following rewritten paragraph:

~~--The present~~ This application is a continuation of U.S. Patent Application No. 09/843,676, filed April 26, 2001, pending, which is a continuation of U.S. Patent Application No. 08/854,050, filed May 9, 1997, now U.S. Patent No. 6,261,836; which is a continuation-in-part of U.S. Patent Application No. 08/851,843, filed May 6, 1997, now U.S. Patent 6,093,809; which is a continuation-in-part of U.S. Patent Application No. 08/846,017, filed April 25, 1997, now abandoned; which is a continuation-in-part of U.S. Patent Application No. 08/844,419, filed April 18, 1997, now abandoned; ~~which is a continuation-in-part of U.S. Patent Application No. 08/724,643, filed October 1, 1996, now abandoned. Each of the aforementioned applications is explicitly incorporated herein by reference in its entirety and for all purposes.--~~

Please replace the paragraph beginning at page 9, line 15, with the following rewritten paragraph:

--In alternative preferred embodiments, the present invention provides polynucleotide sequences corresponding to the human telomerase, including SEQ ID NOS:173 and 224, and their complementary sequences. The invention further contemplates fragments of these polynucleotide sequence (*i.e.*, SEQ ID NOS: 173 and 224) that are at least 5 nucleotides, at least 20 nucleotides, at least 100 nucleotides, at least 250 nucleotides, and at least 500 nucleotides in length. The invention further contemplates fragments of the complements of these polynucleotide sequences (*i.e.*, SEQ ID NOS: 173 and 224) that are at least 5 nucleotides, at least 20 nucleotides, at least 100 nucleotides, at least 250 nucleotides, and at least 500 nucleotides in length. In addition, the invention features polynucleotide sequences that hybridize under stringent conditions to SEQ ID NOS: 173 and 224, and/or fragments, and/or the complementary sequences thereof. The present invention further contemplates a polynucleotide sequence comprising the complement of the nucleic acids of SEQ ID NOS: 173 and 224, or variants thereof. In a further embodiment, the polynucleotide sequence comprises a purified, synthetic

nucleotide sequence corresponding to a fragment of SEQ ID NOS: 173 and 224, having a length of about ten to thirty nucleotides. The present invention further provides plasmid pGRN121 (ATCC accession ##20916), and the lambda clone 25-1.1 (ATCC ~~accession #~~ accession # 209024).--

Please replace the paragraph beginning at page 11, line 29, with the following rewritten paragraph:

--The present invention also provides methods for detecting the presence of nucleotide sequences encoding at least a portion of human telomerase in a biological sample, comprising the steps of, providing: a biological sample suspected of containing nucleic acid corresponding to the nucleotide sequence of SEQ ID NO: 100, and/or SEQ ID NO: 173, and/or SEQ ID NO: 224; the ~~nucleotide~~ polynucleotide of SEQ ID NO: 100, and/or SEQ ID NO: 173, and/or SEQ ID NO: 224, or fragment(s) thereof, combining the biological sample with the ~~nucleotide~~ polynucleotide under conditions such that a hybridization complex is formed between the nucleic acid and the ~~nucleotide~~ polynucleotide; and detecting the hybridization complex.--

Please replace the paragraph beginning at page 13, line 17, with the following rewritten paragraph:

--~~Figure 9 shows~~ Figures 9A and 9B show the DNA sequence of the gene encoding the 123 kDa telomerase protein subunit (SEQ ID NO:1).--

Please replace the paragraph beginning at page 13, line 23, with the following rewritten paragraph:

--~~Figure 12 shows~~ Figures 12A-12D show the DNA sequence, as well as the amino acid sequences of all three open reading frames of the 43 kDa telomerase protein subunit (SEQ ID NOS:4-6).--

Please replace the paragraph beginning at page 13, line 25, with the following rewritten paragraph:

--~~Figure 13 shows~~ Figures 13A and 13B show a sequence comparison between the 123 kDa telomerase protein subunit of *E. aediculatus* (SEQ ID NO:2) and the 80 kDa polypeptide subunit of *T. thermophila* (SEQ ID NO:52).--

Please replace the paragraph beginning at page 13, line 28, with the following rewritten paragraph:

--~~Figure 14 shows~~ Figures 14A and 14B show a sequence comparison between the 123 kDa telomerase protein subunit of *E. aediculatus* (SEQ ID NO:2) and the 95 kDa telomerase polypeptide of *T. thermophila* (SEQ ID NO:54).--

Please replace the paragraph beginning at page 14, line 32, with the following rewritten paragraph:

--~~Figure 30 shows~~ Figures 30A and 30B show the DNA sequence of *tez1* (SEQ ID NO:68).--

Please replace the paragraph beginning at page 15, line 2, with the following rewritten paragraph:

--~~Figure 33 is~~ Figures 33A and 33B present a schematic summary of the *tez1*⁺ sequencing experiments.--

Please replace the paragraph beginning at page 15, line 7, with the following rewritten paragraph:

--~~Figure 36~~ Figures 36A and 36B (SEQ ID NOS:58, 118, 121-130) ~~shows~~ show the alignment of the M2 PCR product with *E. aediculatus* p123, *S. cerevisiae*, and *Oxytricha* telomerase protein sequences.--

Please replace the paragraph beginning at page 15, line 18, with the following rewritten paragraph:

--~~Figure 42~~ Figures 42A-42J (SEQ ID NOS:2, 55 and 69) ~~shows~~ show the alignment of three telomerase sequences.--

Please replace the paragraph beginning at page 15, line 24, with the following rewritten paragraph:

--~~Figure 46 shows~~ Figures 46A-46F show the DNA (SEQ ID NO:68) and amino acid (SEQ ID NO:69) sequence of *tez1*, with the coding regions indicated.--

Please replace the paragraph beginning at page 15, line 26, with the following rewritten paragraph:

--~~Figure 47 shows~~ Figures 47A-47C show the DNA (SEQ ID NO:100) and amino acid (SEQ ID NO:101) of the ORF encoding an approximately 63 kDa telomerase protein or fragment thereof.--

Please replace the paragraph beginning at page 15, line 31, with the following rewritten paragraph:

--~~Figure 50 provides~~ Figures 50A and 50B provide the results of preliminary nucleic acid sequencing analysis of human telomerase (SEQ ID NO:173).--

Please replace the paragraph beginning at page 15, line 33, with the following rewritten paragraph:

--~~Figure 51 provides~~ Figures 51A-51I provide the preliminary nucleic acid (SEQ ID NO:173) and deduced ORF sequences (SEQ ID NOS:174-223) of human telomerase.--

Please replace the paragraph beginning at page 16, line 2, with the following rewritten paragraph:

--~~Figure 53 provides~~ Figures 53A-53F provide the nucleic acid (SEQ ID NO:224) and deduced ORF sequence (SEQ ID NO:225) of human telomerase.--

Please replace the paragraph beginning at page 16, line 4, with the following rewritten paragraph:

--Figure 54 provides a restriction map of lambda clone 25-1.1 (ATCC ~~accession~~
#_____ accession # 209024).--

Please replace the paragraph beginning at page 82, line 8, with the following rewritten paragraph:

--In addition, human cDNA libraries (inserted into lambda) were probed with the EcoRI-NotI fragment of the clone (#AA281296). One lambda clone, designated "lambda 25-1.1," (ATCC ~~accession~~ #_____ accession # 209024) was identified as containing complementary sequences. Figure 54 shows a restriction map of this lambda clone. The human cDNA insert from this clone was subcloned as an EcoRI restriction fragment into the EcoRI site of commercially available phagemid pBluescriptIISK+ (Stratagene), to create the plasmid "pGRN121," which was deposited with the ATCC (ATCC accession #209016). Preliminary results indicated that plasmid pGRN121 contains the entire open reading frame (ORF) sequence encoding the human telomerase protein.--

Amendments to the Drawings:

The attached sheets of drawings include changes to the following drawings as indicated below:

- Fig. 9 (2 sheets) are replaced with attached sheets Figs. 9A and 9B;
- Fig. 12 (4 sheets) are replaced with attached sheets Figs. 12A-12D;
- Fig. 13 (2 sheets) are replaced with attached sheets Figs. 13A and 13B;
- Fig. 14 (2 sheets) are replaced with attached sheets Figs. 14A and 14B;
- Fig. 30 (2 sheets) are replaced with attached sheets Figs. 30A and 30B;
- Fig. 36 (2 sheets) are replaced with attached sheets Figs. 36A and 36B;
- Fig. 42 (1sheet) is replaced with attached sheets Figs.42A-42J;
- Fig. 46 (5 sheets) are replaced with attached sheets Figs. 46A-46F;
- Fig. 47 (4 sheets) are replaced with attached sheets Figs. 47A-47C;
- Fig. 50 (2 sheets) are replaced with attached sheets Figs. 50A and 50B;
- Fig. 51 (10 sheets) are replaced with attached sheets Figs.51A-51I;
- Fig. 53 (8 sheets) are replaced with attached sheets Figs. 53A-53E.

Attachment: Replacement Sheets
Annotated Sheet Showing Changes for Fig. 53